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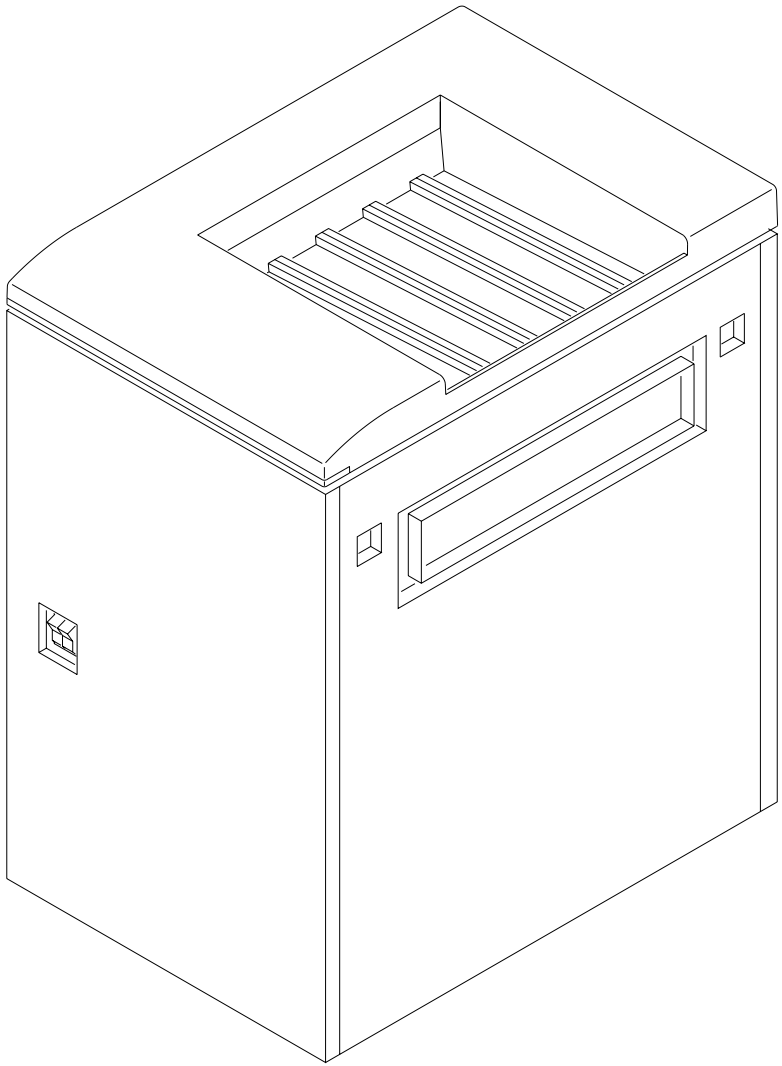
DIAGNOSTICS for the *Kodak X-Omat* 180 LP and 180 LPS PROCESSORS



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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

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Section 1: Introduction and Definitions

Introduction

- The 500 CIRCUIT BOARD monitors the operation of the Processor and continuously checks for errors. When an error occurs, an error code displays on the DISPLAY PANEL of the PRINTER.
- Error codes appear in order of priority.
- More than one error code can occur at one time.
- The lower the error code number, the higher its priority.
- When 2 or more errors occur at the same time, only the highest priority error code appears on the display panel.
- When the higher priority error/warning code is corrected, the next priority error/warning code appears on the display panel.
- In addition, all errors are stored in an error log on the 500 CIRCUIT BOARD. This error log, accessable with the portable computer and appropriate software, indicates how many times each error has occured.
- There are 3 types of error codes: Fatal, Non-Fatal, and Warning.

Note

When errors occur, certain components may be disabled by the microprocessor. Use the portable computer and diagnostic tests to help troubleshoot the components.

Fatal Errors

A Fatal Error is any error that can cause a hazardous situation to develop if the processor is allowed to continue to operate. The user cannot correct the error. The printer will not send film to the processor. Move the MAIN CIRCUIT BREAKER CB1 to the “O” position and call for service.

Non-fatal Errors

A Non-Fatal Error is any error that in most cases cannot be corrected by the operator. The printer will not send film to the processor. The operator should call for service.

Warning Errors

A Warning Error is any error that can be corrected by the operator. The operator can override some errors, such as an E132 and an E134, to allow the printer to send film.

The processor can continue to operate. The error is a temporary condition or one which the operator can correct. Image quality may be reduced.

Section 2: Error and Warning Codes

Fatal Errors

Error Code	Error Description	Possible Malfunction	Action
E001	500 Circuit Board	500 CIRCUIT BOARD	Install a new 500 CIRCUIT BOARD.
		Corrupted software on the CIRCUIT BOARD	Download new software or install a new U19.
E002	Dryer Over Temperature Greater than 74˚C (165˚F)	DRYER THERMISTOR CONNECTORS are loose, worn, or corroded.	• Clean or repair the CONNECTORS. • Tighten the CONNECTORS.
		DRYER THERMISTOR • is open or shorted • the resistance is not correct	• Check that the resistance at 25˚C (77˚F) is approximately 10K ohm. • Install a new DRYER THERMISTOR.
		SOLID STATE RELAY U3 (controls the DRYER HEATER)	• Check for correct operation of SOLID STATE RELAY U3. • Install a new RELAY U3.
E005	Loss of Dryer Air Flow or Open Dryer Overtemperature Thermostat	The DRYER HEATER and BLOWER will be disabled when this error exists.	
		AIR FLOW SWITCH	Install a new AIR FLOW SWITCH.
		DRYER OVERTEMP THERMOSTAT	• Reset or install a new OVERTEMPERATURE THERMOSTAT, if necessary. (If OVERTEMPERATURE THERMOSTAT opens again, determine the cause of the overtemperature condition. See E002.)
		DRYER BLOWER not operating	Check and replace if necessary: • FUSE F1 • DRYER BLOWER
		500 CIRCUIT BOARD • Malfunction of RELAY K502	Install a new 500 CIRCUIT BOARD.

Non-fatal Errors

Error Code	Error Description	Possible Malfunction	Action
E032	Developer Tank Fill	This error will occur if the DEVELOPER TANK does not fill in 4 minutes in normal operation and 15 minutes in the Tank Fill Mode. This error will occur if the DEVELOPER TANK is empty and the Tank Fill mode is not selected. This error can also occur during initial setup when the TANKS of the processor are filled with water. To prevent the error, add 8 fluid ounces of developer to the DEVELOPER TANK before filling the Processor with water. Using the diagnostics, energize the RECIRCULATION PUMP to circulate the developer and remove any air bubbles.	
		LEVEL PROBES and CONNECTORS	• Clean LEVEL PROBES. • Clean and check connections for the LEVEL PROBE CONNECTORS.
		Solution level is low in the REPLENISHER TANK.	Mix new developer solution.
		REPLENISHMENT HOSE has an air bubble, kink or other obstruction.	Remove any HOSE obstructions between the REPLENISHER TANK and the REPLENISHMENT PUMP.
		DEVELOPER DRAIN VALVE is open.	Close the DEVELOPER DRAIN VALVE.
		SOLID STATE RELAY U4 (Controls the DEVELOPER REPLENISHMENT PUMP.)	• Check for correct operation of SOLID STATE RELAY U4. • If necessary, install a new SOLID STATE RELAY U4.
		DEVELOPER REPLENISHMENT PUMP	• Check FUSE F1 • Check for correct operation of MOTOR B3. • If necessary, install a new DEVELOPER REPLENISHMENT PUMP.
		POPPET VALVES in the DEVELOPER REPLENISHMENT PUMP	• Clean the POPPET VALVES. • If necessary, install new POPPET VALVES.
		500 CIRCUIT BOARD • Voltage at SOLID STATE RELAY U4 PINS 3 and 4 is not 5 V DC during replenishment. • AC side of RELAY K506B is open during replenishment. • Malfunction of level sense circuit.	Install a new 500 CIRCUIT BOARD.

Error Code	Error Description	Possible Malfunction	Action
E033	Fixer Tank Fill	This error will occur if the FIXER TANK does not fill in 4 minutes in normal operation and 15 minutes in the Tank Fill Mode. This error will occur if the FIXER TANK is empty and the Tank Fill mode is not selected. This error can also occur during initial setup when the TANKS of the Processor are filled with water. To prevent the error, add 8 fluid ounces of fixer to the FIXER TANK before filling the Processor with water. Use the diagnostics and the portable computer to operate the RECIRCULATION PUMP. The PUMP will circulate the fixer and remove any air bubbles.	
		LEVEL PROBES and CONNECTORS	• Clean LEVEL PROBES. • Clean and check connections for the LEVEL PROBE CONNECTORS.
		Solution level is low in the REPLENISHER TANK.	Mix new fixer solution.
		HOSE has an air bubble, kink or other obstruction.	Remove any HOSE obstructions between the REPLENISHER TANK and the REPLENISHMENT PUMP.
		FIXER DRAIN VALVE is open.	Close the FIXER DRAIN VALVE.
		SOLID STATE RELAY U2 that controls the FIXER REPLENISHMENT PUMP	• Check for correct operation of SOLID STATE RELAY U2. • If necessary, install a new SOLID STATE RELAY U2.
		FIXER REPLENISHMENT PUMP	• Check FUSE F1. • Check for correct operation of MOTOR B4. • If necessary, install a new FIXER REPLENISHMENT PUMP.
		POPPET VALVES in the FIXER REPLENISHMRNT PUMP	• Clean the POPPET VALVES. • If necessary, new POPPET VALVES.
		500 CIRCUIT BOARD • Voltage at SOLID STATE RELAY U2 PINS 3 and 4 is not 5 V DC during replenishment. • AC side of RELAY K506A is open during replenishment. • Malfunction of level sense circuit.	Install a new 500 CIRCUIT BOARD.

Error Code	Error Description	Possible Malfunction	Action
E034	Unable to Determine Developer Temperature	The DEVELOPER HEATER and DEVELOPER COOLING SOLENOID will be disabled when this error exists.	
		DEVELOPER THERMISTOR • is open or shorted • The resistance is not correct.	• Check that the resistance at 25˚C (77˚F) is approximately 10K ohms. • If necessary, install a new DEVELOPER THERMISTOR.
		DEVELOPER THERMISTOR CONNECTORS are loose, worn, or corroded.	• Clean or repair the CONNECTORS. • Tighten the connections.
		500 CIRCUIT BOARD • Malfunction of the A/D conversion. • Precision RESISTOR test fails.	Install a new 500 CIRCUIT BOARD.
		Ambient temperature is below 15˚C (59˚F), causing the developer to be below measuring range of A/D	• Increase the ambient temperature. • De-energize and then energize the Processor to allow more time for solutions to be heated before measuring the temperature.
		Temperature of developer is above the measuring range of A/D >66˚C (105˚F)	Determine the cause of developer over-temperature. If necessary, change the SOLID STATE RELAY U5.
		See E037 for additional actions.	
E035	Unable to Determine Fixer Temperature (Moving DIP SWITCH 1 on the 500 CIRCUIT BOARD to “ON” will disable report of this error)	The FIXER HEATER will be disabled when this error occurs.	
		FIXER THERMISTOR • is open or shorted • The resistance is not correct.	• Check that the resistance at 25˚C (77˚F) is approximately 10K ohms. • If necessary, install a new FIXER THERMISTOR.
		FIXER THERMISTOR CONNECTORS are loose, worn, or corroded.	• Clean or repair the CONNECTORS. • Tighten the connections.
		500 CIRCUIT BOARD • Malfunction of the A/D conversion. • Precision RESISTOR test fails.	Install a new 500 CIRCUIT BOARD.
		Ambient temperature is below 15˚C (59˚F), causing the fixer to be below measuring range of A/D	• Increase the ambient temperature. • De-energize and then energize the Processor to allow more time for solutions to be heated before measuring the temperature.
		Temperature of fixer is above the measuring range of A/D >66˚C (105˚F)	Determine the cause of developer over-temperature. If necessary, change the SOLID STATE RELAY U1.
		See E039 for additional actions.	

Error Code	Error Description	Possible Malfunction	Action
E036	Unable to Determine Dryer Temperature	The DRYER HEATER will be disabled when this error occurs.	
		• DRYER THERMISTOR is open or shorted. • The resistance is not correct.	• Check that the resistance at 25˚ (77˚F) is approximately 10K ohms. • If necessary, install a new DRYER THERMISTOR.
		DRYER THERMISTOR CONNECTORS are loose, worn, or corroded.	• Clean or repair the CONNECTORS. • Tighten the connections. • If necessary, install new CONNECTORS.
		500 CIRCUIT BOARD • Malfunction of the A/D conversion. • Precision RESISTOR test fails.	Install a new 500 CIRCUIT BOARD.
		See E040 for additional actions.	
E037	Loss of Developer Heating Ability	The DEVELOPER HEATER HR1 has an internal OVERTEMPERATURE THERMOSTAT. When the HEATER is extremely hot, the OVERTEMPERATURE THERMOSTAT opens. Wait for the HEATER to cool, allowing the THERMOSTAT to reset before measuring the resistance.	
		SOLID STATE RELAY U5 (controls the DEVELOPER HEATER)	• Check for correct operation of SOLID STATE RELAY U5. • If necessary, install a new SOLID STATE RELAY U5.
		DEVELOPER HEATER HR1 • is open or shorted • the resistance is not correct	• Check FUSE F2. • Check that the resistance at 25˚C (77˚F) is approximately 50 ohms. • Install a new DEVELOPER HEATER HR1.
		500 CIRCUIT BOARD • Voltage at SOLID STATE RELAY U5 PINS 3 and 4 is not 5 V DC. • Malfunction of RELAY K504A.	• Check that the K504 LED (DS4) on the 500 CIRCUIT BOARD is illuminated. • Install a new 500 CIRCUIT BOARD.
		DEVELOPER COOLING SOLENOID L2	• Check that DEVELOPER COOLING SOLENOID L2 is shutting off developer flow through the HEAT EXCHANGER. • If necessary, install a new DEVELOPER COOLING SOLENOID L2.
		RECIRCULATION PUMP	• Check FUSE F1. • Check for correct operation of MOTOR B5. • Install a new RECIRCULATION PUMP, if necessary.

Error Code	Error Description	Possible Malfunction	Action
		See E034 for additional actions.	
E038	Loss of Developer Cooling Ability	No water is supplied to the WASH TANK	Check: • SOLENOID L1 (WASH WATER INPUT) • If necessary, clean or replace the SOLENOID. • If necessary, connect the QUICK DISCONNECT. • Check that the incoming water supply is supplying water. If necessary, turn the water on or replace the FILTER.
		Incoming water temperature is too hot.	The wash water must be a minimum of 5.5˚C (10˚F) below the DEVELOPER TEMPERATURE setpoint.
		HEAT EXCHANGER has an obstruction	Clean the HEAT EXCHANGER in the WASH TANK.
		SOLENOID L2 (developer cooling)	• Disassemble and clean SOLENOID L2. • If necessary, replace SOLENOID L2.
		A1 POWER SUPPLY	• Check that the A1 POWER SUPPLY is providing 24 V DC to TERMINAL 1 on SOLENOID L1 (input WASH) and SOLENOID L2 (DEVELOPER cooling). If necessary, replace A1 POWER SUPPLY.
		500 CIRCUIT BOARD • Terminal 2 on SOLENOIDS L1 or L2 is not 24 V DC return.	If necessary, replace the 500 CIRCUIT BOARD.
		RECIRCULATION PUMP	• Check for correct operation of MOTOR B5. • If necessary, install a new RECIRCULATION PUMP.
		WASH TANK CLIP not installed.	Install the WASH TANK CLIP.
		See E034 and E037 for additional actions.	

Error Code	Error Description	Possible Malfunction	Action
E039	Loss of Fixer Heating Ability	The FIXER HEATER HR2 has an internal OVERTEMPERATURE THERMOSTAT. When the HEATER is extremely hot, the OVERTEMPERATURE THERMOSTAT opens. Wait for the HEATER to cool, allowing the THERMOSTAT to reset before measuring the resistance.	
		FIXER HEATER HR2 • is open or shorted • the resistance is not correct	• Check FUSE F2. • Check that the resistance at 25 ˚C (77˚)F is approximately 50 ohms. • If necessary, install a new FIXER HEATER HR2.
		SOLID STATE RELAY U1 (controls the FIXER HEATER)	• Check for correct operation of SOLID STATE RELAY U1. • If necessary, install a new SOLID STATE RELAY U1.
		500 CIRCUIT BOARD • Voltage at solid state relay U1, pins 3 and 4 is not 5 V DC. • Malfunction of RELAY K504B	• Check that the K504 LED (DS4) on the 500 CIRCUIT BOARD is illuminated. • Install a new 500 CIRCUIT BOARD.
		Recirculation Pump malfunctioning.	• Check FUSE F1. • Check for correct operation of MOTOR B5. • If necessary, install a new RECIRCULATION PUMP.
		See E035 for additional actions.	
E040	Inoperative Dryer	SOLID STATE RELAY U3 (controlls the DRYER HEATER)	• Check for correct operation of SOLID STATE RELAY U3. • If necessary, iInstall a new SOLID STATE RELAY U3.
		RELAY K7 (enables the DRYER HEATER)	• Check for correct operation of RELAY K7. • If necessary, install a new RELAY K7.
		500 CIRCUIT BOARD • Voltage at SOLID STATE RELAY U3 pins 1 and 2 is not 5 V DC. • Malfunction of the RELAY K501.	• Check that K501 LED (DS1) on the 500 CIRCUIT BOARD is illuminated. • If necessary, install a new 500 CIRCUIT BOARD.
		DRYER HEATER • is open or shorted • resistance at 25 ˚C (77 ˚F) is not approximately 22 ohms.	If necessary, install a new DRYER HEATER.
		PANELS or DRYER RACK removed from the Processor	Install the PANELS or DRYER RACK.
		See E036 for additional actions.	

Error Code	Error Description	Possible Malfunction	Action
E042	Loss of the Accessory Data Link	CABLE connections are loose.	Check: • The CABLE connections between the Printer and the Processor.
E128	Processor Cover Not Closed This error can occur only in a Processor without a Sorter.	• COVER open • COVER INTERLOCK SWITCH malfunction	• Close COVER. • Check and repair COVER INTERLOCK SWITCH S4.
E139	Processor Exit Sensor	EXIT SENSOR	• Install a new EXIT SENSOR. • Firmly seat the EXIT SENSOR in the mounting. • CONNECTOR P/J 33 may be loose. • Clear film jam.
E160 - E167	Processor Communication Error	Cable connections are loose.	Check the cable connections between the Printer and Processor. If necessary, connect the cable.
		500 CIRCUIT BOARD malfunction.	Install a new 500 CIRCUIT BOARD.
		Malfuction in the LASER PRINTER	Repair the LASER PRINTER.
E168 - E176	Film Jam in Processor/ Film Not Detected by Processor	Film jam	Clear film jam. If necessary, see Mechanical Diagnostics for additional information on the film jam.
		ENTRANCE DETECTOR SENSOR	Adjust or replace the ENTRANCE DETECTOR SWITCHES.
		EXIT SENSOR	Replace the EXIT SENSOR.
E211		Operator attempts to print film while an error exists in the Processor	De-energize and then energize both the Processor and the Printer. If the Processor error still exists, the error will be displayed. See the preceding error tables for the action to take for that error.

Warnings

Error Code	Error Description	Possible Malfunction	Action
W129	Tank Fill Mode	None	No action needed.
W130	Replenisher Pumps Disabled	None	Using the KEYPAD, select either Automatic or Flooded Replenishment to enable the REPLENISHMENT PUMPS.
W132	Developer Under Set Temperature	None	No action needed. This error will clear once the temperature reaches the setpoint and the operator exits the DISPLAY SCREEN that displays the error. The operator can override this error.
W133	Developer Over Set Temperature	None	No action needed. This error will clear once the temperature reaches the setpoint and the operator exits the DISPLAY SCREEN that displays the error.
W134	Dryer Under Set Temperature	None	No action needed. This error will clear once the temperature reaches the setpoint and the operator exits the DISPLAY SCREEN that displays the error. The operator can override this error.

Section 3: Mechanical Diagnostics

Problem — Transport Malfunctions

Rack and Crossover Remedies

[1] Check that all RACKS and CROSSOVERS are in the correct position.

[2] Check that all RACKS and CROSSOVERS are seated correctly.

[3] Check for squareness of CROSSOVER and RACK ASSEMBLIES.

[4] Check that all RACKS and CROSSOVERS are cleaned thoroughly. See the Preventive Maintenance section of the Service Manual.

[5] Check that the CROSSOVER TROUGHS are in the correct positions.

[6] Check that the WATER YOKE is installed correctly.

Roller Remedies

[1] Check that all ROLLERS are correctly positioned and are rotating freely.

[2] Check that all ROLLER GEARS, SPROCKETS, and IDLERS are engaged.

[3] If any ROLLERS are broken or have worn GUDGEONS, remove them and install new ones.

[4] If any BEARINGS are worn, remove them and install new ones.

[5] If any SPRINGS or E-RINGS are broken or missing, install new SPRINGS or E-RINGS.

[6] Adjust the tension on the RACK CHAIN so that the ROLLERS operate smoothly.

Dryer Remedies

[1] Check that the DRYER AIR TUBES are in their correct positions.

[2] Check that the DRYER TEMPERATURE is set to the lowest possible temperature that still allows good drying.

[3] Check that the DRYER RACK and EXIT RACK are seated correctly and that the LOCKING TABS are in the correct positions.

[4] Check for damage to the DRYER DRIVE GEAR.

Miscellaneous Remedies

[1] Check that the TOP COVER is closed.

Problem — Surface Artifacts or Abnormal Densities

Replenishment Remedies

[1] Check that the replenishment rates are set for correct replenishment. Check that:

- the replenishment calibration is correct
- the TUBING of the REPLENISHMENT SYSTEM is straight and not pinched
- the REPLENISHMENT PUMP is operating
- HOSE CLAMPS are tight
- the LEVEL SENSOR PROBES and CONNECTORS are clean

[2] Change any chemicals that were not mixed correctly, that are exhausted, or are contaminated. When mixing fresh chemicals follow the recommendations below.

- Mix a maximum of a 2 week supply of DEVELOPER REPLENISHER.
- Mix all chemicals and solutions as directed.
- To prevent contaminating the developer, always use a SPLASH GUARD and DRIP TRAY when removing the FIXER RACK from the Processor.

[3] Fill the REPLENISHER TANKS if the solution levels are low.

[4] Check that the DRAIN VALVES are completely closed. Check that the processing TANKS are full.

Recirculation Remedies

[1] Check that the ORIFICES in the DEVELOPER and the FIXER RECIRCULATION HOSE are not plugged.

[2] Install a new DEVELOPER FILTER.

[3] With the processor energized and the processing TANKS full, check for movement of the solutions at the surface of the processing TANKS. Movement indicates recirculation. If no movement is observed, check that:

- the TUBING for the RECIRCULATION SYSTEM is straight and not pinched
- the PUMP is operating
- the DEVELOPER FILTER is correctly positioned.

Rack and Crossover Remedies

[1] Check that all the RACKS and CROSSOVERS are in the correct position.

[2] Check that all RACKS and CROSSOVERS are cleaned thoroughly. See the Preventive Maintenance section of the Service Manual.

[3] Check that the CROSSOVER TROUGHS and the EVAPORATION COVERS are in the correct positions.

[4] Check that the WATER YOKE is installed correctly.

[5] Check that all RACKS are correctly seated.

Roller Remedies

[1] Check that the surfaces of all the ROLLERS are clean and smooth, especially in the DEVELOPER RACK and CROSSOVERS.

[2] Remove any buildup of debris from the DETECTOR ROLLERS.

[3] Check the CROSSOVER GUIDE SHOES are clean.

[4] Check that all ROLLERS are correctly positioned and are rotating freely.

[5] Check that all ROLLER GEARS, SPROCKETS, and IDLERS are engaged.

[6] Replace any ROLLERS with broken or worn GUDGEONS.

[7] Replace any BEARINGS that are worn.

[8] Replace any broken or missing SPRINGS or E-RINGS.

[9] Adjust the tension on the RACK CHAIN so that the ROLLERS operate smoothly.

Dryer Remedies

[1] Remove any dirt from the DRYER AIR TUBES and from within the SLOTS in the DRYER AIR TUBES. Use a BOTTLE BRUSH TL-4833 to clean the AIR TUBES. Rinse the AIR TUBES with water.

[2] Check the AIR TUBES are in the correct position.

[3] Adjust the DRYER TEMPERATURE CONTROL SETTING to the **lowest** possible temperature that still allows good drying.

Miscellaneous Remedies

[1] Check incoming water temperature. The water temperature must be between 4 and 29˚C (40 and 85˚F).

[2] Check that the TOP COVER is closed and that the ACCESS PANELS are installed on the processor.

[3] Check that light does not leak through the LIGHT-TIGHT GASKET on the PRINTER DOCKING ASSEMBLY.

[4] Check that the wash water is flowing.

[5] Check that the WET SECTION COVER is in place.

[6] Check that the ventilation is correctly set and that the EXHAUST HOSE is connected.

Problem — Wet Films

Replenishment Remedies

[1] Check that the replenishment rates are set for correct replenishment. Check that:

- the replenishment calibration is correct
- the TUBING of the REPLENISHMENT SYSTEM is straight and not pinched
- the REPLENISHMENT PUMP is operating
- HOSE CLAMPS are tight.
- the LEVEL SENSOR PROBES and CONNECTORS are clean.

[2] Change any chemicals that were not mixed correctly, that are exhausted, or are contaminated.

When mixing fresh chemicals, follow these recommendations:

- Mix a maximum of a 2-week supply of DEVELOPER REPLENISHER.
- Mix all chemicals and soutions as directed.
- To prevent contaminating the developer, always use a SPLASH GUARD and DRIP TRAY when removing the FIXER RACK from the Processor.

[3] Fill the REPLENISHER TANKS if the solution levels are low.

[4] Check that:

- the DRAIN VALVES are completely closed
- the processing TANKS are full

Recirculation Remedies

[1] With the Processor energized and the processing TANKS full, check for movement of the solutions at the surface of the processing TANKS. Movement indicates recirculation. If no movement is observed, check that:

- the TUBING of the replenishment system does not have obstructions and is not pinched
- the REPLENISHMENT PUMP is operating
- the DEVELOPER FILTER is seated correctly

Dryer Remedies

[1] Check that the DRYER AIR TUBES are in the correct positions.

[2] Remove any dirt from the DRYER AIR TUBES and from within the SLOTS in the DRYER AIR TUBES. Use a BOTTLE BRUSH to clean the AIR TUBES. Rinse the AIR TUBES with water.

[3] Increase the DRYER TEMPERATURE, but always adjust the DRYER TEMPERATURE CONTROL SETTING to the **lowest** possible temperature that still allows good drying.

[4] Check that the DRYER AIR EXHAUST is free from any obstruction and is installed according to specifications in the Installation Instructions.

[5] Check that the DRYER HEATER is operating.

[6] Check that the DRYER and EXIT ASSEMBLIES are correctly seated.

Wash Water Remedies

[1] Check that the wash water is flowing on the ROLLERS on the WASH RACK.

[2] Check that the holes in the CROSSOVER TROUGHS are open. Clean the holes if necessary, to prevent overflow of the wash water and diluting of the developer and fixer.

Problem — Solution Levels

Replenishment Remedies

[1] Check that the replenishment rates are set for correct replenishment. Check that:

- the replenishment calibration is correct
- the TUBING of the REPLENISHMENT SYSTEM is straight and not pinched
- the REPLENISHMENT PUMP is operating.

[2] Fill the REPLENISHER TANKS if solution levels are low.

[3] Check that the POPPET SEATS are not dirty or distorted and preventing correct replenishment. If necessary, have qualified personnel clean or replace them.

[4] Check that the LEVEL PROBES and the SPRING SPADES are clean and free from build-up.

[5] Check that all TUBING and HOSES are without kinks and air bubbles.

[6] Check DRAIN VALVES for leakage.

Section 4: Publication History

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